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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of Parts 2 and
90 of the Commission's
Rules Relating to the
Location and Monitoring
Service in the
902-928 MHz Band

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PR Docket No. 93-61

ERRATA TO COMMENTS

AMTECH Corporation ("AMTECH"), by its attorneys, respectfully submits these errata to its Comments filed in the above-captioned proceeding on June 29, 1993.

The errata are as follows:

1. Page 5, the last line of the text: change "wholly justified" to "wholly unjustified."
2. Page 7, end of the carry-over paragraph: add a footnote (no. 13.1) that reads "Appendix C attached hereto proposes specific language for the Part 90 rule changes under this alternative band plan."
3. Page 10, footnote 19, first citation: Delete "Cf. RFP § III-4 ("two way communication . . . at 300 baud")" and replace with "Cf. Cal. Code of Regulations, Title 21, ch. 16, art. 1 (AVM specification of 300 kbps) attached to ATCAS RFP as Appendix B." The reference to be deleted refers to an existing wired data

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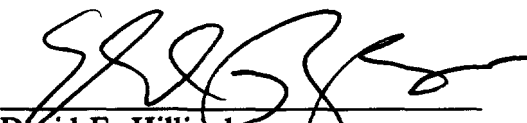
communication and not to the proposed CALTRANS local-area AVM systems, which will provide wireless communications at a 300 kbps rate.

4. Page 17, footnote 33. Change "40 dBmV/m" to "33 dBmV/m."
5. Page 30, bottom of the text, second bullet. Change "911-912" to "909-911."
6. Page 30, footnote 61. Change "12 dBmV/m" to "5.6 dBmV/m."
7. Appendices B and C, pages B-8 and C-8, respectively, proposed rule Section 90.205: add language incorporating the alternative field strength limits proposed in nn 33 and 61 (see attached).

AMTECH is serving parties of record with these errata, along with copies of the corrected pages affected thereby, which should be associated with the pleading.

Respectfully submitted,

AMTECH CORPORATION



David E. Hilliard
Edward A. Yorkgitis, Jr.
WILEY, REIN & FIELDING
1776 K Street, N.W.
Washington, D.C. 20006
(202) 429-7000

Its Attorneys

July 9, 1993

ATTACHMENT

**Corrected Pages to the
June 29, 1993 Comments
of AMTECH Corporation**

PR Docket 93-61

trucking and fleet management; and (5) air transport.⁸ AMTECH's customers include

systems to share, certain accommodations in the AVM band plan may be needed. In that event, AMTECH proposes an alternative plan that would facilitate the deployment of wide-area systems requiring a comparative low noise environments while maintaining an even greater degree of flexibility for both local-area and wide-area AVM systems than the *NPRM*'s tentative band plan.^{13.1}

Further, AMTECH discusses the Commission's proposals on technical rules, including height and power limitations for both local-area and wide-area systems, robustness standards for wide-area systems, out-of-channel emissions, frequency stability, and equipment authorization. In addition, AMTECH proposes rules providing for extended implementation. Finally, AMTECH discusses the Commission's proposal regarding the temporary grandfathering of existing local-area AVM systems in the event the adopted band plan limits the licensing of some local-area systems to certain parts of the band, and provides certain alternatives that it believes treat more fairly those who rely on existing local-area systems.

**A. The Commission's Proposed Band Plan Denies
Sufficient Spectrum for Local-Area Systems'
Existing and Future Needs**

In the *NPRM*, the Commission proposed to permit licensing of local-area systems solely in the 902-904, 912-918, and 926-928 MHz bands. This 10 MHz total would represent almost a 40% reduction from the amount of spectrum currently

^{13.1} Appendix C attached hereto proposes specific language for the Part 90 rule changes under this alternative band plan.

regulation¹⁷ that specify a *mandatory* standard for AVM for revenue collection purposes within the State of California. This requirement was adopted after two years of diligent and deliberate study and public hearings. Moreover, a host of AVM manufacturers and others have proposed this standard to the Federal Highway Administration in accordance with the Intermodal Transportation Efficiency Act of 1991 as the basis for a non-proprietary, open protocol national standard for vehicle-to-roadside communications. The U.S. Department of Transportation has asked Lawrence Livermore National Laboratories and the National Institute of Standards and Technology to evaluate the California standard as a potential national standard.

Pursuant to the statute and regulation described above, the California Department of Transportation ("CALTRANS") has recently issued a request for proposals ("RFP") to implement the California AVM standard for local-area systems, the Advanced Toll Collection and Accounting System ("ATCAS").¹⁸ The CALTRANS standard specifies a data rate that AMTECH has determined will require a single local-area reader to employ a "channel" that is approximately 6 MHz wide.¹⁹

¹⁷ See Cal. Streets and Highways Code, §§ 27564 and 27565; Cal. Code of Regulations, Title 21, ch. 16, arts. 1-4 (1992).

¹⁸ California Department of Transportation, Department of General Services, RFP DOT-2008, § VI-02 (Jan. 8, 1993) (system specifications: in-lane subsystem). AMTECH's present generation of read-write tag systems requires approximately 2.5 MHz to accommodate the reader transmissions. See, *supra*, p. 9. Because the bandwidth requirements of these applications exceed 2 MHz, much of the discussion regarding the CALTRANS requirements applies to AMTECH's read-write systems as well.

¹⁹ Cf. Cal. Code of Regulations, Title 21, ch. 16, art. 1 (AVM specification of 300 kbps) attached to ATCAS RFP as Appendix B. AMTECH, in cooperation with Motorola Inc., and others are currently in the process of spending millions of dollars designing and developing an automatic vehicle

(continued...)

C. AMTECH's Preferred Band Plan

1. The Commission Should Open The Entire 902-928 MHz Band To All LMS System Types.

The Commission proposes that only "pulse-ranging" systems requiring between 2 and 8 MHz be licensed in the 904-912 MHz and 918-926 MHz sub-bands. Local-area and any other systems would be authorized to use only the 902-904, 912-918, and 926-928 MHz bands. Given the demands for spectrum for local-area systems, as described above, this band plan does not afford sufficient spectrum or incorporate sufficient flexibility into LMS licensing in the 902-928 MHz band. In order to meet the requirements of local-area systems and not handicap regulatorily any particular type of system or technology -- existing, under development, or not yet conceived -- LMS operators should be permitted to apply for the use of any frequencies in the 902-928 MHz band. Of course, individual transmitters should continue to be licensed on specific frequencies to facilitate coordination and spectrum sharing.

The power and height limits under the proposed full-sharing plan would be as follows:

- Local-area system base stations would be restricted to 30 W ERP at a height of 10 meters above ground;³³

³³ Local-area systems could alternatively demonstrate compliance by meeting a field strength limit of 33 dBmV/m measured 2 meters above ground at a distance of 0.5 miles from the transmitting site. Such an alternative approach will facilitate the use of higher ERP facilities installed in the ground between dual sets of railroad tracks. In-ground systems of this type have been developed recently to

(continued...)

Therefore, AMTECH proposes the following alternative should the Commission determine that the public interest would be served by increasing the protection from local-area operations afforded certain wide-area systems. This alternative plan is based on three principles. First, the entire band would be shared subject to strict power or field strength limitations depending on the type of system and frequency sub-band. Second, wide-area systems needing a very low noise environment would have 4 MHz sub-bands in which to operate subject to increased protection from signals generated by local-area systems. Third, narrowband forward links, if permitted in the 902-928 MHz band, would receive no more protection than other AVM facilities operating within their designated power limitations.

Specifically, under this alternative, AMTECH proposes the following licensing and power rules as modifications to the band plan described above in order to provide more interference protection to certain wide-area systems:

- In the 907-909 and 921-923 MHz sub-bands, power from local-area readers (i.e., base stations, including highway beacons) and tags (i.e., mobiles) would both be limited to 50 mW ERP;⁶¹
- In the 906-907, 909-910, 920-921, and 923-924 MHz sub-bands, local-area readers and tags would be limited to 200 mW ERP and 50 mW ERP, respectively.⁶²

⁶¹ These low-power local-area sub-bands could be used to accommodate "spill-over" from a wideband local-area systems. Thus, such systems could place no more than 50 mW ERP into these bands so as to produce a field strength of 5.6 dBmV/m as measured at a distance of 0.5 miles from the emitter at a height of 2 meters above ground.

⁶² These low-power local-area sub-bands could be used to accommodate "spill-over" from a wideband local-area system.

8. Section 90.205(b) is amended by adding the 902-928 MHz band to the table and by adding footnote (13) to read as follows:

§ 90.205 Power.

* * * * *

(b) * * *

Frequency range (megahertz)	Maximum Output power (watts)	Maximum effective radiated power (watts)
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* * * * *

902-928	(13)
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¹³ The maximum effective radiated power (ERP) of local-area LMS systems highway beacons is 100 W. The maximum ERP of local-area LMS system base stations is 30 W (with a height limitation of 10 meters) and the maximum ERP of LMS portable stations is 10 W. Local area LMS system base stations are compliant with this rule if they meet a field strength limit of 33 dBmV/m at 0.5 miles at 2 meters above ground. The maximum ERP of local-area mobiles is 1 W. The maximum ERP of wide-area LMS forward links located in the 902-928 MHz band is 625 W per MHz not to exceed 5000 W ERP total, except that forward links located in the 902.000-902.250 and 927.750-928.000 MHz sub-bands may have an ERP of 500 W. Forward links located outside the 902-928 MHz band are subject to the power restrictions under the regulations governing the service in which they are authorized. The maximum ERP of wide-area LMS system mobiles is 50 W and any such mobile shall not transmit for more than 10 ms in any 100 ms period.

Effective radiated power shall be measured as peak power.

* * * * *

9. Section 90.209 is amended by adding new paragraphs (b)(10) and (m) to read as follows:

§ 90.209 Bandwidth limitations.

* * * * *

(b) * * *

(10) The maximum authorized bandwidth shall be 26 MHz and the minimum authorized bandwidth shall be 2 MHz for wide-area LMS systems in the band 902-928 MHz. The maximum authorized

bandwidth shall be 26 MHz for local-area LMS operations in the band 902-928 MHz, except that the maximum authorized bandwidth for local-area highway beacons systems operating in the bands

8. Section 90.205(b) is amended by adding the 902-928 MHz band to the table and by adding footnote (13) to read as follows:

§ 90.205 Power.

* * * * *

(b) * * *

Frequency range (megahertz)	Maximum Output power (watts)	Maximum effective radiated power (watts)
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* * * * *

902-928	(¹³)
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* * * * *

¹³ The maximum effective radiated power (ERP) of local-area LMS systems highway beacons is 100 W. The maximum ERP of local-area LMS system base stations is 30 W (with a height limitation

§ 90.209 Bandwidth limitations.

* * * * *

(b) * * *

(10) The maximum authorized bandwidth shall be 26 MHz and the minimum authorized bandwidth shall be 2 MHz for wide-area LMS systems in the band 902-928 MHz. The maximum authorized bandwidth shall be 26 MHz for local-area LMS operations in the band 902-928 MHz, except that the maximum authorized bandwidth for local-area highway beacons systems operating in the bands 902-906 and 924-928 MHz shall be 6 MHz.

* * * * *

(m) For transmitters authorized under Subpart F that operate in the 902-928 MHz band the peak power of any emission shall be attenuated below the power of the highest emission contained within the authorized channel bandwidth in accordance with the following schedule:

(1) On any frequency within the authorized bandwidth: Zero dB.

(2) On any frequency outside of the authorized bandwidth: $55 + 10\log(P)$ dB where (P) is the highest emission (watts) of the transmitter inside the authorized bandwidth, provided however, that in the sub-bands 906-907, 909-910, 920-921, and 923-924 MHz the highest emission from a local area LMS transmitter operating in these sub-bands or in the sub-bands 902-906, 910-920, and 924-928 MHz shall not exceed 200 milliwatts and that in the sub-bands 907-909 and 921-923 MHz the highest emission from a local area LMS transmitter operating in these sub-bands or elsewhere in the band 902-928 MHz shall not exceed 50 milliwatts. Note: Under this provision a 30 watt LMS transmitter operating at 905 MHz with a 6 MHz wide authorized bandwidth would be required to attenuate emissions above 906 MHz by 21 dB, above 907 MHz by 27 dB, and below 902 MHz and above 908 MHz by 70 dB.

(3) The resolution bandwidth of the instrumentation used to measure the emission power shall be 100 kHz. If a video filter is used, its bandwidth shall not be less than the resolution bandwidth.

(4) Emission power (P) shall be measured in peak values.

CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of July, 1993, I caused copies of the foregoing "Errata to Comments" to be mailed via first-class postage prepaid mail to the following:

Warren G. Lavey
James M. Fink
Skadden, Arps, Slate,
Meagher & Flom
333 West Wacker Drive
Chicago, IL 60606

Ronald A. Siegel
Allan R. Adler
Roy R. Russo
Cohn & Marks
1333 New Hampshire Ave., NW
Suite 600
Washington, DC 20036

Jack T. Taylor
9215 Rancho Drive
Elk Grove, CA 95624

David Schlotterbeck
Nellcor Incorporated
25495 Whitesell Street
Hayward, CA 94545

Max Rogers
Cobra Electronics
Corporation
6500 West Cortland Street
Chicago, IL 60635

Christopher D. Imlay
Booth, Freret & Imlay
1233 20th Street, N.W.
Suite 204
Washington, DC 20036

The Portland Amateur Radio
Club
c/o R. Mayer
6115 SE 13th Avenue
Portland, Oregon 97202

Jeffrey L. Ritter
6959 Hovenkamp
Fort Worth, TX 76118

William J. Kaiser
48025 Freemont Blvd.
Fremont, CA 94538

Guy S. Kirchhoff
CliniCom
4720 Walnut Street
Suite 106
Boulder, CO 80301

David R. Wiedman
AccuScan
P.O. Box 80037

Gary Adams
State of California
Department of Transportation
Division of Maintenance
1120 N Street
P.O. Box 942873
Sacramento, CA 94273

Barbara N. McLennan
George A. Hanover
2001 Pennsylvania Ave., N.W.
Washington, DC 20006

James L. Casserly
Squire, Sanders & Dempsey
1201 Pennsylvania Ave., N.W.
P.O. Box 407
Washington, DC 20044

Lawrence J. Movshin
Wilkinson, Barker, Knauer &
Quinn
1735 New York Avenue, N.W.
Washington, DC 20006

David C. Jatlow
Young & Jatlow
2300 N Street, N.W.
Suite 600
Washington, DC 20037

Dwight B. Hall
265 Norcrest Drive
Rochester, NY 14677

Henry M. Rivera
Larry S. Solomon
Ginsburg, Feldman & Bress,
Chartered
1250 Connecticut Ave., N.W.
Suite 800
Washington, DC 20036

Stephen R. Bell
David Alan Nall
Squire, Sanders & Dempsey
1201 Pennsylvania Ave., N.W.
P.O. Box 407
Washington, DC 20044

Robert L. Borchardt
Recoton Corporation
2950 Lake Emma Road
Lake Mary, Florida 32746

J.R. Beyster
Science Applications
International Corporation
1241 Cave Street
La Jolla, CA 92037

William P.N. Smith
P.O. Box 438
North Reading, MA 01864-
0438

Gordon Schlesinger
Judith L. Young
Southern California Gas
Company
555 West Fifth Street
Los Angeles, CA 90013

Debra A. Perelman
Telxon Corporation
3330 W. Market Street
Akron, OH 44313

Jon Nelson
Uniplex Corporation
2905 Country Drive
St. Paul, MD 55117

Tom Cackette
State of California
Air Resources Board
2020 L Street
P.O. Box 2815
Sacramento, CA 95812

Joseph Cherie
United States Postal Service
Processing and Distribution
Center
433 W. Van Buren Street
Chicago, IL 60607

Donald L. Schilling
InterDigital Communications
Corporation

833 Northern Boulevard
Great Neck, NY 11021

Kent Britain
1626 Vineyard
Grand Prairie, TX 75052

Robert S. Butts
2825 31st Street, N.W.
Washington, DC 20008

David H. Phillips
Ruth E. Phillips
2901 Accokeek Rd. West
Accokeek, MD 20607-9645

James R. Haynes
Uniden America Corporation
Engineering Services Office
8707 North By Northeast Blvd
Fishers, IN 46038

Frank Dorrance
AIM^{USA}
634 Alpha Drive
Pittsburgh, PA 15238

Jeffrey L. Sheldon
Sean A. Stokes
Utillites Telecommunications
Council
1140 Connecticut Ave., N.W.
Suite 1140
Washington, DC 20036

Bruce B. Stwertnik
6968 San Bernardo Cir.
Buena Park, CA 90620

Michael T. Helm
Rt. 5 Box 188
Lubbock, TX 79407

Hunter O. Wagner, Jr.
Greater New Orleans
Expressway Commission
P.O. Box 7656
Metairie, LA 70010

Ronald F. Cunningham
Lockheed IMS
Glenpointe Centre East
Teaneck, NJ 07666

Gerald J. Rose
524 N. Quaker Lane
Alexandria, VA 22304

Howard W. Reynolds
4614 Aspen Hill Ct.
Rockville, MD 20853

Bethany G. Smith
Bethany G. Smith